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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,051	01/22/2004	Peter E. Oettinger	2003627-0006	3799

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BOSTON, MA 02109

EXAMINER

KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	<b>Application No.</b> 10/763,051	<b>Applicant(s)</b> OETTINGER ET AL.	
	<b>Examiner</b> Chih-Cheng Glen Kao	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/19/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Drawings*

1. Drawings were received on 9/30/04. However, these drawings have not been considered by the Examiner. Please refer to the Petition Decision mailed 2/22/05.

2. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

The missing drawings include Figures 5C, 5D, and 5E.

3. The drawings are objected to because of the following informalities: (fig. 2e, "BC\_FDBK" should be #204), (fig. 2e, "BC\_CTRL" should be #200), and (#112 used to designate both a winding (fig. 3a) and HV\_PRI\_B (figs. 2e, 4b, and 4c)).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

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be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

4. The disclosure is objected to because of the following informalities. In the following format (location of objection; suggestion, if any, for correction), the following suggestions may obviate their respective objections: (multiples instances of #112 used to designate different components as seen on page 24, line 15, and page 28, line 17, for example), (page 26, line 4, "Resonant Converter 128"; replacing "128" with - 108- -), (page 27, line 13, "R50"; replacing "R50" with - R70- -), (page 31, line 23, "Figure 5B" which should be - Figure 5A- -), (page 32, lines 7-8, #206; deleting "206" after "amplifier"), and (page 37, line 15, "configuration 4000"; replacing "4000" with - 4002- -). Appropriate correction is required.

5. The disclosure is objected to because the Brief Description of Drawings does not include a description for Figure 5F. Appropriate correction is required.

***Claim Objections***

6. Claims 1, 12, 25, 28, and 33 are objected to because of the following informalities, which appear to be minor draft errors including lack of antecedent basis and grammatical problems.

In the following format (location of objection; suggestion for correction), the following suggestions may obviate their respective objections: (claim 1, line 6, “high voltage power supply and the electrical”; inserting a comma after “supply”), (claim 12, line 7, “high voltage power supply and electrical”; inserting a comma after “supply”), (claim 25, line 1, “said radio-opaque material”; changing the dependency of claim 25 from claim 21 to claim 23), (claim 28, line 1, “said solid, electrically insulating material”; replacing “solid, electrically insulating material” with - -solid cast block- -), and (claim 33, line 2, “said resonant converter”; changing the dependency of claim 33 from claim 30 to claim 32).

For purposes of examination, the claims have been treated as such. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 4, 9, 11, 30, 31, 34, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Skillicorn (US Patent 4694480).

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8. Regarding claims 1 and 30, Skillicorn discloses an apparatus comprising an x-ray tube that emits x-rays (fig. 8c, #26), a high voltage power supply (66) coupled to said x-ray tube that supplies a high voltage for use with said x-ray tube, and electrical connection (fig. 8c, #78) that connects the x-ray tube to the high voltage power supply, wherein the x-ray tube, the high voltage power supply, and the electrical connection are encapsulated in a solid, electrically-insulating material containing a radio-opaque material including a lead compound (col. 5, lines 33-37, and col. 6, lines 26-29).

9. Regarding claims 4 and 34, Skillicorn would necessarily have an amount of said radio-opaque material in accordance with a predetermined degree of radiation attenuation for purposes of shielding a user from unnecessary radiation (col. 6, lines 26-29).

10. Regarding claims 9, 11, 31, and 39, Skillicorn further discloses a molded complex shape (col. 5, line 31, and fig. 1, #22) and portability (title).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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11. Claims 2, 3, 12, 18, 20, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn as applied to claims 1 and 30 above, and further in view of Nomikos et al. (US Patent 5153900).

12. Regarding claims 2, 3, 12, 32, and 33, Skillicorn discloses an apparatus as recited above. Skillicorn further discloses electrical connections (fig. 8c, #78 and connection between #66 and 84).

However, Skillicorn does not disclose a resonant converter that drives a high voltage power supply connected to a step up transformer driving a high-voltage multiplier.

Nomikos et al. teaches a resonant converter (fig. 6, #280) that drives a high voltage power supply connected to a step up transformer (fig. 6, #282) driving a high-voltage multiplier (fig. 6, #284).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Skillicorn with the converter, transformer, and multiplier of Nomikos et al., since one would be motivated to make such a modification to provide better control (col. 9, line 61, to col. 10, line 30) as implied from Nomikos et al.

13. Regarding claims 18 and 20, Skillicorn further discloses a molded complex shape (col. 5, line 31, and fig. 1, #22) and portability (title).

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14. Claims 5, 21, 23, 25, 29, and 35 are rejected as being under 35 U.S.C. 103(a) as being unpatentable over Skillicorn as applied to claims 1 and 30 above, and further in view of Malcolm et al. (US Patent 4979198).

15. Regarding claims 5, 21, and 35, and for purposes of being concise, Skillicorn discloses an apparatus or method as recited above.

However, Skillicorn does not disclose a thin conductive layer over an electrically insulating material to provide electric shielding.

Malcolm et al. teaches a thin conductive layer over an electrically insulating material to provide electric shielding (col. 10, lines 15-23).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus or method of Skillicorn with the conductive layer of Malcolm et al., since one would be motivated to make such a modification for better protection (col. 10, lines 15-23) as implied from Malcolm et al.

16. Regarding claim 23, Skillicorn further discloses encapsulating power (fig. 6, #66) and control (fig. 6, #78) circuit components in a solid cast block including a radio-opaque material (fig. 6, #42).

17. Regarding claims 25 and 29, Skillicorn would necessarily have an amount of said radio-opaque material in accordance with a predetermined degree of radiation attenuation for purposes of shielding a user from unnecessary radiation (col. 6, lines 26-29), and portability (title).



18. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn in view of Nomikos et al. as applied to claim 12 above, and further in view of Malcolm et al.

Skillicorn as modified above suggests an apparatus as recited above.

However, Skillicorn does not disclose a thin conductive layer over an electrically insulating material to provide electric shielding.

Malcolm et al. teaches a thin conductive layer over an electrically insulating material to provide electric shielding (col. 10, lines 15-23).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Skillicorn as modified above with the conductive layer of Malcolm et al., since one would be motivated to make such a modification for better protection (col. 10, lines 15-23) as implied from Malcolm et al.

19. Claims 6-8, 15-17, 26-28, and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn, Nomikos et al., and Malcolm et al. as applied to claims 5, 14, 21, and 35 above, and further in view of Davies (US Patent 5927482).

Skillicorn as modified above suggests an apparatus and method as recited above.

However, Skillicorn does not disclose a thin conductive layer composed from a thin metal foil made from at least one of copper and aluminum adhered adhesively.

Davies teaches a thin conductive layer composed from a thin metal foil adhered adhesively (col. 2, lines 51-60). Davies further teaches using copper or aluminum for shielding (col. 2, lines 47-53).

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It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus and method of Skillicorn as modified above with the metal foil of Davies, since one would be motivated to make such a modification for better protection (col. 2, lines 51-52) as implied from Davies.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus and method of Skillicorn as modified above with copper or aluminum, since it is within the general skill of a worker in the art to select a known material on the basis of its suitability. One would be motivated to use copper or aluminum for better protection (col. 2, lines 47-52) as implied from Davies.

20. Claims 10, 19, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn and Nomikos et al. as applied to claims 1, 12, and 30 above, and further in view of Courtois (US Patent 3643094).

Skillicorn as modified above suggests an apparatus as recited above.

However, Skillicorn does not disclose an x-ray tube and power supply connected by a coaxial cable.

Courtois teaches an x-ray tube and power supply connected by a coaxial cable (col. 1, lines 14-16).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Skillicorn as modified above with the coaxial cable Courtois, since one would be motivated to make such a modification to prevent damage (col. 1, lines 14-16) as implied from Courtois.

21. Claims 13 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn, Nomikos et al., and Malcolm et al. as applied to claims 12 and 21 above, and further in view of Moulton (US Patent 6494618).

Skillicorn as modified above suggests an apparatus or method as recited above.

However, Skillicorn does not disclose insulating material formed from urethane.

Moulton teaches insulating material formed from urethane (col. 5, line 29).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus or method of Skillicorn as modified above with the urethane of Moulton, since one would be motivated to make such a modification to prevent unnecessary x-rays and damage (col. 2, lines 10-12) as implied from Moulton.

22. Claim 24 is rejected as being under 35 U.S.C. 103(a) as being unpatentable over Skillicorn in view of Malcolm et al. as applied to claim 21 above, and further in view of Tomita (JP 05-031740).

Skillicorn as modified above suggests a method as recited above.

However, Skillicorn does not disclose casting using a two-part epoxy-resin system.

Tomita teaches casting using a two-part epoxy-resin system (title).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Skillicorn as modified above with the casting system of Tomita, since one would be motivated to make such a modification to reduce bubbles in the structure for a better structure (abstract, use/advantage) as implied from Tomita.

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23. Claim 41 are rejected as being under 35 U.S.C. 103(a) as being unpatentable over Skillicorn as applied to claim 1 above, and further in view of Aitken (GB 2007480).

Skillicorn discloses an apparatus as recited above.

However, Skillicorn does not disclose lead oxide.

Aitken teaches lead oxide (abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Skillicorn as modified above with the lead oxide of Aitken, since one would be motivated to make such a modification for a less bulky device (page 1, lines 8-14) as shown by Aitken.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

24. Claims 1-41 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8-29, 51-60, and 63-74 of copending Application No. 10/370783 in view of Aitken.

Application No. 10/370783 claims a module and method comprising an x-ray tube, a high-voltage supply, and electrical connection, wherein the tube, power supply, and electrical connection are encapsulated in an electrically-insulating, radio-opaque material including at least one of a lead compound using a two-part epoxy-resin casting system, a resonant converter, a step up transformer, high-voltage multiplier, wherein an amount of said material is in accordance with a predetermined degree of radiation attenuation, a thin conductive layer formed from a metal foil made of copper adhered adhesively, wherein the electrically-insulating material is molded into a complex shape, wherein the power supply is connected by a coaxial cable, and wherein the module is portable (claims 8-29, 51-60, and 63-74).

However, Application No. 10/370783 does not claim tin or lead oxide.

Aitken teaches tin (claim 4) or lead oxide (abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the claims of Application No. 10/370783 as modified above with the tin or lead oxide of Aitken, since one would be motivated to make such a modification for a less bulky device (page 1, lines 8-14) as implied from Aitken.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

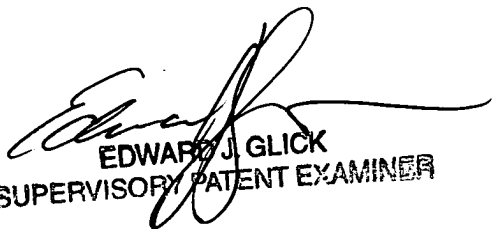
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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